

SUPPORT FOR THE AMENDMENTS

Claim 1 is amended to use structure and wording consistent with U. S. patent law practice.

Claims 4 and 5 are amended to use proper antecedent basis to Claim 1.

Claim 6 is new and is supported on page 4, lines 26-27, in the specification.

Claim 7 is new and is supported on page 5, lines 34-41, in the specification.

Claim 8 is new and is supported on page 6, lines 1-2, in the specification.

No new matter is believed added to this application by entry of this amendment.

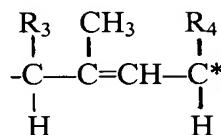
Upon entry of this amendment, Claims 1-8 are active.

REMARKS/ARGUMENTS

The claimed invention is directed to an industrially useful method for preparing carboxyl terminated polyisobutenes. An economical and efficient method which provides a good yield of a uniform polymer having a narrow molecular weight distribution is sought.

The claimed invention addresses this problem by providing the method described in Claim 1 and claims dependent thereon. No such method is disclosed or suggested in the cited reference.

Applicants wish to thank Examiner Choi for the useful and courteous discussion of the above-identified application with Applicants' U.S. representative on November 13, 2008. At that time, Applicants' U.S. representative reviewed and discussed the description of Nakagawa et al. Specifically, the formula sequence in Column 3, between lines 40 and 63 was reviewed. Applicants' U.S. representative noted that the formulas shown in (3) and (4) were partial structures shown only for the purpose of indicating the effect of ozonolysis on the inner chain double bonds. For example the partial structure shown in equation (3) as



is only an incomplete formula and does not represent a structure having a terminal ethylene group. Applicants' U.S. representative pointed out that the carbon shown above as C\* is not indicated as tetravalent and must therefore be incomplete and representative of an internal portion of the complete structure shown in equation (2) of the reference. This reference does not show ozonolysis of a terminal ethylene group. The following reiterates and expands upon that discussion.

The rejection of Claims 1 and 3-5 under 35 U.S.C. 102(b) over Nakagawa et al. (US 3,427,351) is respectfully traversed.

Nakagawa describes ozonolysis of a copolymer of a monoolefin and a conjugated diene to prepare a carboxy terminated polymer. The chemistry of this reference is shown at the bottom of Cols. 1 and 2 and as shown in the Intermediate Isoalkene Conjugated Diene Copolymer double bonds are obtained in the internal bonds of the formed carbon chain. Terminal double bonds are not disclosed or suggested in this reference.

In contrast, in the process of the claimed invention, polymers having **terminal double bonds** of the specific structures shown by formulas (III) and (IV) are formed. Applicants have described specific methods to prepare the polymers having terminal structures according to Claim 1. For example, the following description is found on page 4 of the specification:

Polyisobutenes of the formula I in which B is a radical IV in which R<sup>1</sup> and R<sup>2</sup> are each phenyl can be obtained, for example, by reacting the living polymer in a living cationic polymerization of isobutene with 1,1-diphenylethylene and a base to give a diphenylvinyl-capped polyisobutene. Such diphenylvinyl-capped polyisobutenes and methods of preparing them are described, for example, by J. Feldthusen, B. Iván, A. H. E. Müller and J. Kops in Macromol. Rep. 1995, A32, 639, J. Feldthusen, B. Iván and A. H. E. Müller in Macromolecules 1997, 30, 6989 and in Macromolecules

1998, 31, 578, in DE-A 19648028 and in DE-A 19610350, which are hereby expressly incorporated by reference.

Polyisobutenes of the formula I in which B is a radical III can be obtained, for example, by reacting the living polymer in a living cationic polymerization of isobutene with allyltrimethylsilane to give an allyl-capped polymer. Allyl-capped polyisobutenes and methods of preparing them are described, for example, by B. Iván and J. P. Kennedy in J. polym. Sci. Part A: Chem. Ed. 1990, 28, 89, which are hereby expressly incorporated by reference.

Applicants respectfully submit that such description demonstrates that a polymer with terminal ethylene groups must be formed using special synthetic methods and would not be inherent to the copolymer of Nakagawa.

In view of the above, Applicants respectfully submit that the cited reference can neither anticipate nor render obvious the claimed invention and withdrawal of the rejection of Claims 1 and 3-5 under 35 U.S.C. 102(b) over Nakagawa is respectfully requested.


The rejection of Claims 1-5 under 35 U.S.C. 112, second paragraph, is believed obviated by appropriate amendment. Claim 1 is herein amended to better describe the unit "M" according to formula (II) as a repeating unit. Variable "n" describes the number of M-B units attached to the polymerization initiator "A." The terms "heating the reaction mixture" and "the reaction mixture obtained" have been amended herein. Applicants respectfully submit that the rejections are obviated by the amendments herein and withdrawal of the rejection of Claims 1-5 under 35 U.S.C. 112, second paragraph, is respectfully requested.

Application No. 10/556,808  
Reply to Office Action of October 7, 2008

Applicants respectfully submit that the above-identified application is now in  
condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

  
Jay E. Rowe Jr., Ph.D.  
Registration No. 58,948

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 08/07)